

APED3528ZGC/G-F01

3.5 x 2.8 mm SMD Chip LED Lamp

DESCRIPTIONS

- The Green source color devices are made with InGaN Light Emitting Diode
- Electrostatic discharge and power surge could damage the LEDs
- It is recommended to use a wrist band or anti-electrostatic glove when handling the LEDs
- All devices, equipments and machineries must be electrically grounded

FEATURES

- Single color
- Suitable for all SMD assembly and solder process
- Ideal for backlighting
- Available on tape and reel
- Package: 500 pcs / reel
- Moisture sensitivity level: 3
- Halogen-free
- RoHS compliant

APPLICATIONS

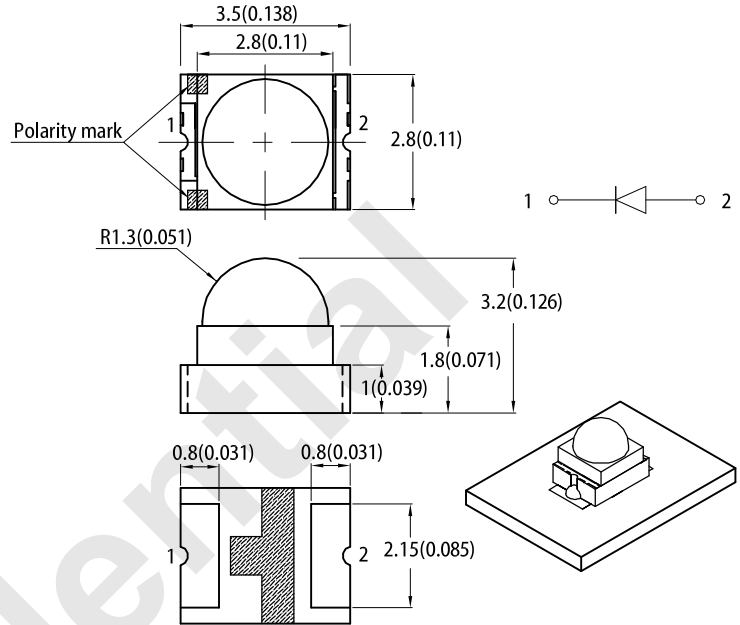
- Backlight
- Status indicator
- Home and smart appliances
- Wearable and portable devices
- Healthcare applications

ATTENTION

Observe precautions for handling electrostatic discharge sensitive devices

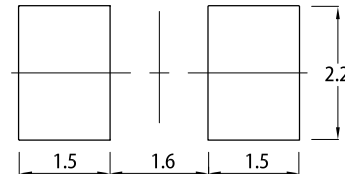


PACKAGE DIMENSIONS



RECOMMENDED SOLDERING PATTERN

(units : mm; tolerance : ± 0.1)



Notes:

1. All dimensions are in millimeters (inches).
2. Tolerance is $\pm 0.2(0.008)$ unless otherwise noted.
3. The specifications, characteristics and technical data described in the datasheet are subject to change without prior notice.
4. The device has a single mounting surface. The device must be mounted according to the specifications.

SELECTION GUIDE

Part Number	Emitting Color (Material)	Lens Type	Iv (mcd) @ 20mA ^[2]		Viewing Angle ^[1]
			Min.	Typ.	2θ1/2
APED3528ZGC/G-F01	■ Green (InGaN)	Water Clear	2300	3200	70°

Notes:

1. θ1/2 is the angle from optical centerline where the luminous intensity is 1/2 of the optical peak value.
2. Luminous intensity / luminous flux: $\pm 15\%$.
3. Luminous intensity value is traceable to CIE127-2007 standards.

ELECTRICAL / OPTICAL CHARACTERISTICS at T_A=25°C

Parameter	Symbol	Emitting Color	Value		Unit
			Typ.	Max.	
Wavelength at Peak Emission I _F = 20mA	λ_{peak}	Green	520	-	nm
Dominant Wavelength I _F = 20mA	$\lambda_{dom}^{[1]}$	Green	525	-	nm
Spectral Bandwidth at 50% Φ REL MAX I _F = 20mA	$\Delta\lambda$	Green	35	-	nm
Capacitance	C	Green	100	-	pF
Forward Voltage I _F = 20mA	V _F ^[2]	Green	3.2	4	V
Reverse Current (V _R = 5V)	I _R	Green	-	50	μA
Temperature Coefficient of λ_{peak} I _F = 20mA, -10°C ≤ T ≤ 85°C	TC _{λ_{peak}}	Green	0.05	-	nm/°C
Temperature Coefficient of λ_{dom} I _F = 20mA, -10°C ≤ T ≤ 85°C	TC _{λ_{dom}}	Green	0.03	-	nm/°C
Temperature Coefficient of V _F I _F = 20mA, -10°C ≤ T ≤ 85°C	TC _V	Green	-2.9	-	mV/°C

Notes:

1. The dominant wavelength (λ_d) above is the setup value of the sorting machine. (Tolerance λ_d : ±1nm.)
2. Forward voltage: ±0.1V.
3. Wavelength value is traceable to CIE127-2007 standards.
4. Excess driving current and / or operating temperature higher than recommended conditions may result in severe light degradation or premature failure.

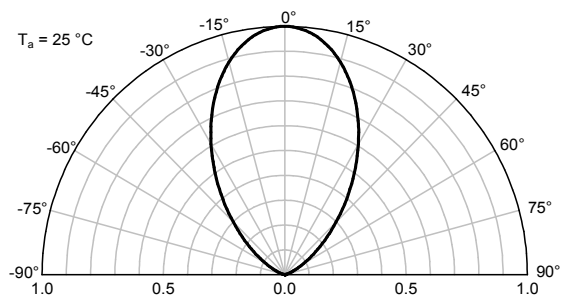
ABSOLUTE MAXIMUM RATINGS at T_A=25°C

Parameter	Symbol	Value	Unit
Power Dissipation	P _D	120	mW
Reverse Voltage	V _R	5	V
Junction Temperature	T _j	115	°C
Operating Temperature	T _{op}	-40 to +85	°C
Storage Temperature	T _{stg}	-40 to +85	°C
DC Forward Current	I _F	30	mA
Peak Forward Current	I _{FM} ^[1]	100	mA
Electrostatic Discharge Threshold (HBM)	-	450	V
Thermal Resistance (Junction / Ambient)	R _{th JA} ^[2]	690	°C/W
Thermal Resistance (Junction / Solder point)	R _{th JS} ^[2]	590	°C/W

Notes:

1. 1/10 Duty Cycle, 0.1ms Pulse Width.
2. R_{th JA}, R_{th JS} Results from mounting on PC board FR4 (pad size ≥ 16 mm² per pad).
3. Relative humidity levels maintained between 40% and 60% in production area are recommended to avoid the build-up of static electricity – Ref JEDEC/JESD625-A and JEDEC/J-STD-033.

RELATIVE INTENSITY vs. WAVELENGTH



The figure contains four graphs illustrating the characteristics of a 5mm red LED:

- Forward Current vs. Forward Voltage:** A graph showing the relationship between forward current (mA) and forward voltage (V) at $T_a = 25^\circ\text{C}$. The current increases exponentially with voltage, starting around 2.5V and 0mA, and reaching 30mA at approximately 3.4V.
- Luminous Intensity vs. Forward Current:** A graph showing the relationship between luminous intensity (normalised at 20 mA) and forward current (mA) at $T_a = 25^\circ\text{C}$. The intensity is directly proportional to the current, reaching 1.5 at 30mA.
- Forward Current Derating Curve:** A graph showing the permissible forward current (mA) versus ambient temperature ($^\circ\text{C}$). The current is constant at 30mA from -40°C to 25°C , and then derates linearly to 0mA at 85°C .
- Luminous Intensity vs. Ambient Temperature:** A graph showing the relationship between luminous intensity (normalised at $T_a = 25^\circ\text{C}$) and ambient temperature ($^\circ\text{C}$). The intensity decreases linearly from approximately 1.3 at -40°C to about 0.8 at 85°C .

Figure 1 is a graph showing the temperature profile of a polymer solution during the polymerization of methyl methacrylate. The y-axis represents Temperature (°C) from 0 to 300, and the x-axis represents Time (sec) from 0 to 300. The profile starts at 25°C, rises to 150°C (pre-heating, 150~200°C, 60~120s), then rises at 3°C/s max. to above 255°C (30s max.), holds at 260°C max. for 10s max., and finally cools at 6°C/s max. to above 217°C (60~150s).

Technical drawing of a tape assembly. The drawing shows a side view of a tape with a central hole and a cross-section view labeled A-A. Dimensions are given in millimeters (mm) with tolerances.

Dimensions:

- Overall width: 12 ± 0.3
- Distance from top edge to center of hole: 1.75 ± 0.1
- Distance from bottom edge to center of hole: 5.5 ± 0.1
- Distance from center of hole to center of next hole: 8 ± 0.1
- Distance from center of hole to center of next hole: 4 ± 0.1
- Distance from center of hole to center of next hole: 2 ± 0.1
- Distance from center of hole to center of next hole: 0.35 ± 0.1
- Distance from center of hole to center of next hole: 3.3 ± 0.1
- Distance from center of hole to center of next hole: 3.8 ± 0.1
- Distance from center of hole to center of next hole: 3.1 ± 0.1
- Distance from center of hole to center of next hole: 3.1 ± 0.1

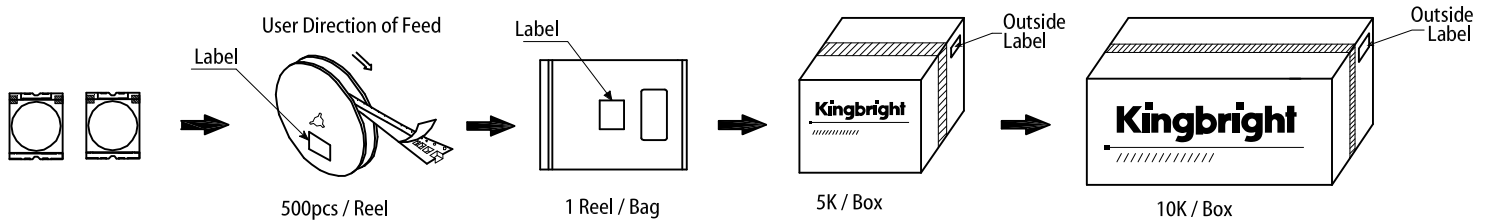
Section A-A:

- Section A-A shows a cross-section of the tape with a central hole of diameter $\phi 1.5 \pm 0.1$.
- The section is labeled $\phi 1.5$ Typ.

[illegible]

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PACKING & LABEL SPECIFICATIONS



Kingbright XXXXXXXXXXXX
CODE: XXXX
D/C: XXX XX XXXX
XXXXXXXX-XXXX

(1P) MFG P/N: XXXXXXXXXXXX

(Q) QTY: XXXX

(9D) DATE CODE: XXXX (4L) COO: CN

(33P) CODE: XXXX

(1T) TRACEABILITY: XXXXXXXXXXX-XXXX

(SP)XXXXXXXXXX

1 RoHS Compliant

PRECAUTIONARY NOTES

1. The information included in this document reflects representative usage scenarios and is intended for technical reference only.
2. The part number, type, and specifications mentioned in this document are subject to future change and improvement without notice. Before production usage customer should refer to the latest datasheet for the updated specifications.
3. When using the products referenced in this document, please make sure the product is being operated within the environmental and electrical limits specified in the datasheet. If customer usage exceeds the specified limits, Kingbright will not be responsible for any subsequent issues.
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